



Oxfam
America

**Testimony of
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Oxfam America**

**Before the
Subcommittee on Energy and Air Quality
Committee on Energy and Commerce
U.S. House of Representatives
On
“Climate Change: Costs of Inaction”**

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Introduction

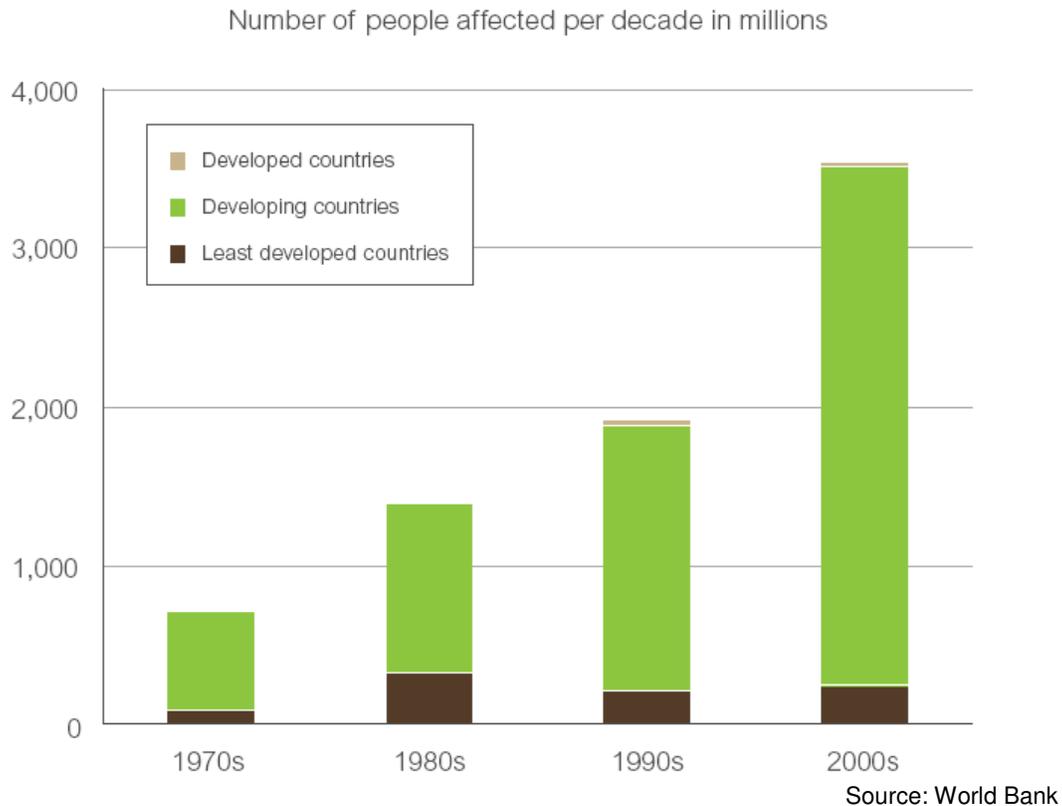
Good morning Mr. Chairman and Members of the Subcommittee.

I am Jim Lyons, Vice President for Policy and Communications for Oxfam America. Oxfam is an international development and humanitarian organization. Oxfam works with communities and partner organizations in more than 120 countries to create lasting solutions to poverty, hunger, and injustice.

We have come to see climate change as one of the greatest challenges to our efforts in the 21st century to promote development and reduce global poverty. In our operations spanning Africa, Latin America, East Asia and the United States itself, our staff and partners are already responding to the serious impacts of climate change, from increasingly severe weather events to water scarcity. Moreover, as the science indicates, poor and vulnerable communities around the world will increasingly bear the brunt of the consequences of global warming, threatening the lives of millions of people and undermining global stability and security.

The reality we face is dire for the world's poor who stand on the front lines of the global climate crisis. People living in developing countries are 20 times more likely to be affected by climate-related disasters compared to those living in the industrialized world, and nearly two billion people in developing countries were affected by climate-related disasters in the 1990s alone. As demonstrated in the following chart, the number of people affected by climate-related disasters in developing countries has increased exponentially during the past four decades.

Figure 1. Number of people affected by climate change (in millions)



The estimates of climate change's contribution to worsening conditions are disturbing. By 2020, up to 250 million people across Africa could face increasingly severe water shortages, according to the Intergovernmental Panel on Climate Change (IPCC). By mid-century, more than a billion people will face water shortages and hunger, including 600 million in Africa alone. Weather extremes, food and water scarcity, and climate-related public health threats are projected to displace between 150 million and one billion people as climate change unfolds. Even in the United States, serious public health effects could be experienced among vulnerable low-income and elderly populations. According to the recent *Scientific Assessment of the Effect of Climate Change in the US*, "climate change is very likely to accentuate the disparities already evident in the American health care system".

Our already strained capacity to respond to natural disasters and health crises around the world is being stretched even further by the increasing harm caused by climate change impacts. Yet perhaps the most significant consequence of climate change will be felt as developing countries struggle to maintain food security in the face of declining agricultural productivity and the loss of crops to weather-related disasters. The very lifeline of the world's poorest countries, where communities depend on agriculture for their very existence, is being frayed to the breaking point.

Moreover, the consequences of climate change reach significantly beyond direct impacts. Global stability and security will be undermined by increasing migration and refugee crises, by conflicts over ever-scarcer natural resources, and by economic

destabilization as poverty and food insecurity grow. Our national interest will not be well-served by a failure to tackle the powerful ripple effects that climate change will cause in some of the most politically sensitive parts of the world.

Ultimately, the climate change challenge we face is two-fold. First, we must acknowledge the enormous costs that a failure to reduce greenhouse gas emissions will impose on us in the future, and we must therefore act to reduce our emissions substantially. Yet even with significant cuts in greenhouse gas emissions, we must also recognize the costs that would come from a failure to immediately address the climate change impacts being felt now. If we do not assist vulnerable communities to build resilience and adapt to climate impacts, the costs we face will be measured not only in dollars but also in lives lost.

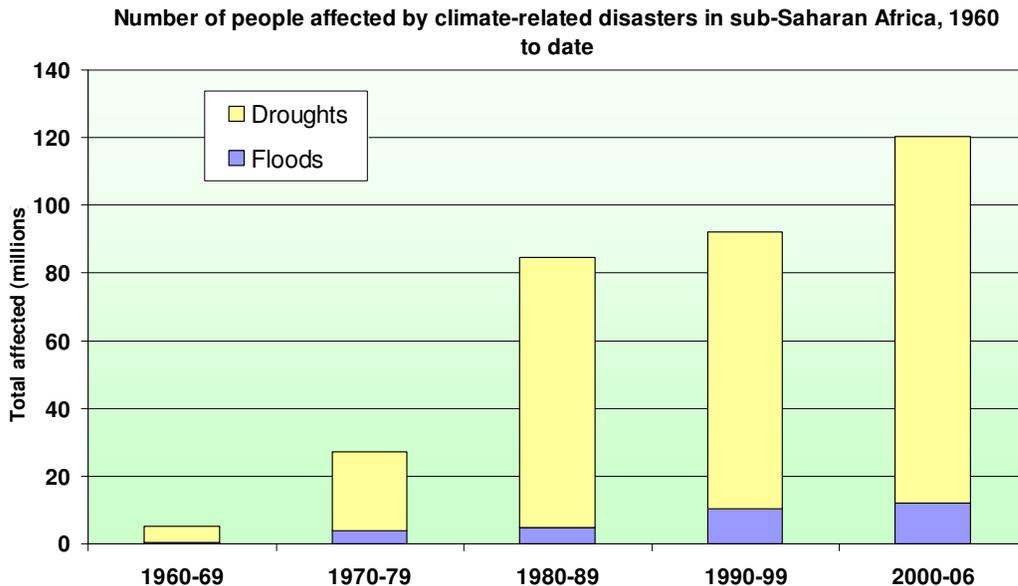
The US can re-emerge as a global leader on both of these fronts by implementing a greenhouse gas emissions reduction program that delivers dramatic, long-term emissions reductions on the order of 80% from 1990 levels by 2050, and by committing additional and substantial financing to build climate-resiliency in vulnerable communities around the world.

Impacts on vulnerable communities in developing countries

The threats that climate change poses to global poverty reduction and development are both broad and deep. Climate change will have ramifications throughout the entire economic, political, and social fabric of developing countries in ways that will hardly be limited to the arena we usually think of as “environmental.” And it will affect those countries in profound ways that will alter development pathways and place substantial obstacles in the way of meeting critical poverty reduction objectives.

By 2020, between 75 million and 250 million people will be exposed to increased water stress due to reduced precipitation. Those most at risk are concentrated in the Mediterranean basin, southern Africa, portions of South America, and the western United States. These are arid and semi-arid regions that are also more likely to suffer droughts over the same time period. Figure 2 demonstrates the increasing occurrence of drought in sub-Saharan Africa since the 1960s, an almost 25 fold increase in little more than four decades.

Figure 2. Number of people affected by flood and drought in sub-Saharan Africa



Source: EM-DAT: The OF DA/CRED International Disaster Database

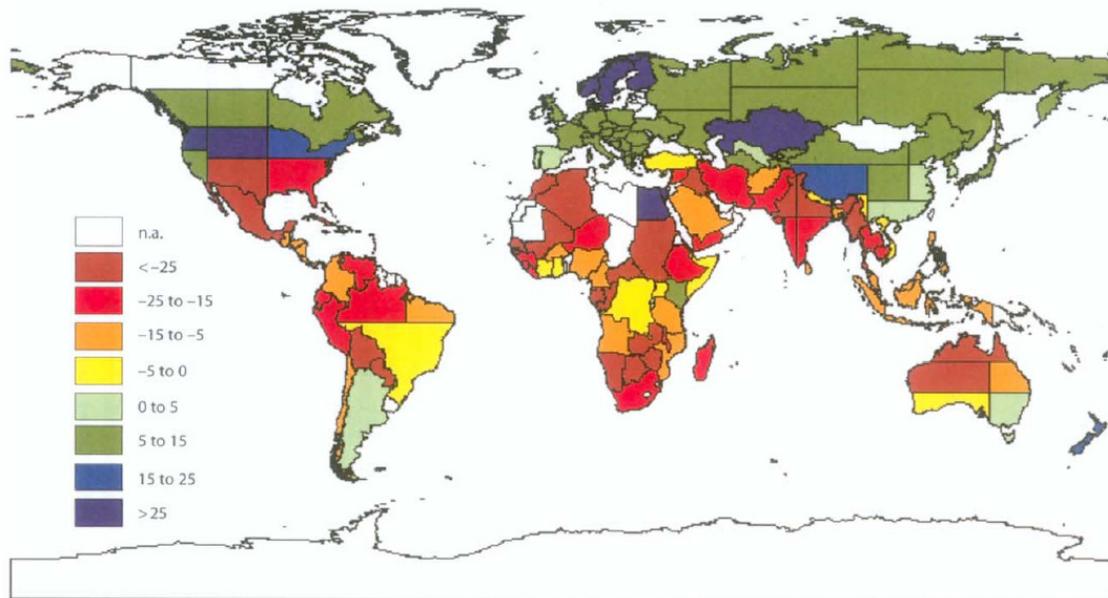
Meanwhile, severe weather events and resulting disasters are becoming increasingly common.

- As of August last year, some 248 million people were affected in 2007 by flooding in 11 Asian countries. Extreme floods are common in South Asia, but climate change models predict even heavier monsoon rainfall—and intense rain in unlikely places.
- Between July 2007 and October 2007, Africa’s worst floods in three decades hit 23 countries from Senegal to Somalia. Nearly two million people were affected. Africa’s climates are highly variable, but more climatic extremes—especially “extremely wet events”—are in line with climate change predictions.

Agriculture is the economic sector most at risk to climate impacts – and the sector in which the consequences of global warming will affect the lives of the greatest number of people. More than 75 percent of people in developing countries depend on agriculture as the main component of their livelihoods. Some countries’ yields from rain-fed crops could be halved by 2020 due to climate impacts. According to recent findings by Stanford University researchers, parts of southern Africa and South Asia stand to lose substantial portions of their staple crops such as corn and rice.

A recent report by William Cline of the Center for Global Development and the Institute for International Economics provides a country-by-country analysis of reduced agricultural yields. The results show that developing countries stand to lose the most from global temperature rise (see Figure 3) and that “the composition of agricultural effects is likely to be seriously unfavorable to developing countries, with the most severe losses occurring in Africa, Latin America, and India.”

Figure 3. Impact of climate change on agricultural productivity (without carbon fertilization)



Source: Cline 2007

The recent rapid increase in world food prices illustrates the human consequences of food scarcity that will be exacerbated by climate change – and may already be related to climate impacts in some cases. While a specific weather event can not be directly tied to climate change, the following are some examples of the agricultural trends that are predicted to occur in coming years due to climate change:

- The World Food Program estimates that, of Ethiopia's 80 million citizens, 3.4 million will need emergency food relief from July to September this year due to an extended drought that has hit the region hard. This is in addition to the 8 million currently receiving assistance. UNICEF has said that the country's food shortage this year is the most severe since 2003, when droughts forced 13.2 million people to seek emergency food aid.
- A small community in the northeastern corner of South Africa, Hluhluwe, is similarly struggling to contend with eight years of drought, high unemployment, and rising poverty coupled with some of the highest HIV rates in the country. Without locally-grown vital fruits, vegetables and grains, people are unable to get the nutritious foods they need to stay healthy. In a community deeply affected by HIV and AIDS, this can have devastating consequences.

While many agricultural communities face growing water scarcity, others are also facing increased floods or sea incursions that damage valuable crops and exacerbate food shortages. Such experiences are similar to the struggles faced by farmers in the

Midwest as corn and soybean growers attempt to bounce back from devastating floods that will leave their fields waterlogged for some time to come. For example:

- The Cham people in Cambodia have previously benefited from seasonal flooding on the Mekong river floodplains providing just enough water for rice cultivation. However, in recent years they have experienced unpredictable floods, and research conducted by the Cambodian Ministry of Environment has shown that agricultural productivity in the country has decreased during the past five years because of the increased flooding, coupled with drought and sea water intrusions. The results have caused many families to leave in search of other livelihoods.
- In areas of Bangladesh monsoon flooding used to be predictable, occurring only in July or August. But now the rains are continuing through October. Increased rainfall combined with rising sea levels and overflowing rivers from melting glaciers are flooding low-lying areas at unprecedented rates, preventing communities from planting their crops. Floating vegetable gardens, raised homesteads, and flood warning systems are helping people adapt to these inhospitable conditions.

Climate change impacts will have serious implications for public health globally. As highlighted by the work of the Intergovernmental Panel on Climate Change, an expansion in the geographic areas impacted by tropical diseases like malaria and cholera is likely to occur. Warming temperatures are expanding the habitat for disease vectors such as mosquitoes and other insects, causing the spread of insect-borne diseases to more northern latitudes as well as to communities living at higher elevations. For example, the UN Framework Convention on Climate Change estimates that the incidence of malaria worldwide would increase by more than 17 million cases annually if concentrations of greenhouse gases reach 550 ppm (corresponding to a likely temperature increase of more than 3.6° F (2° C)).

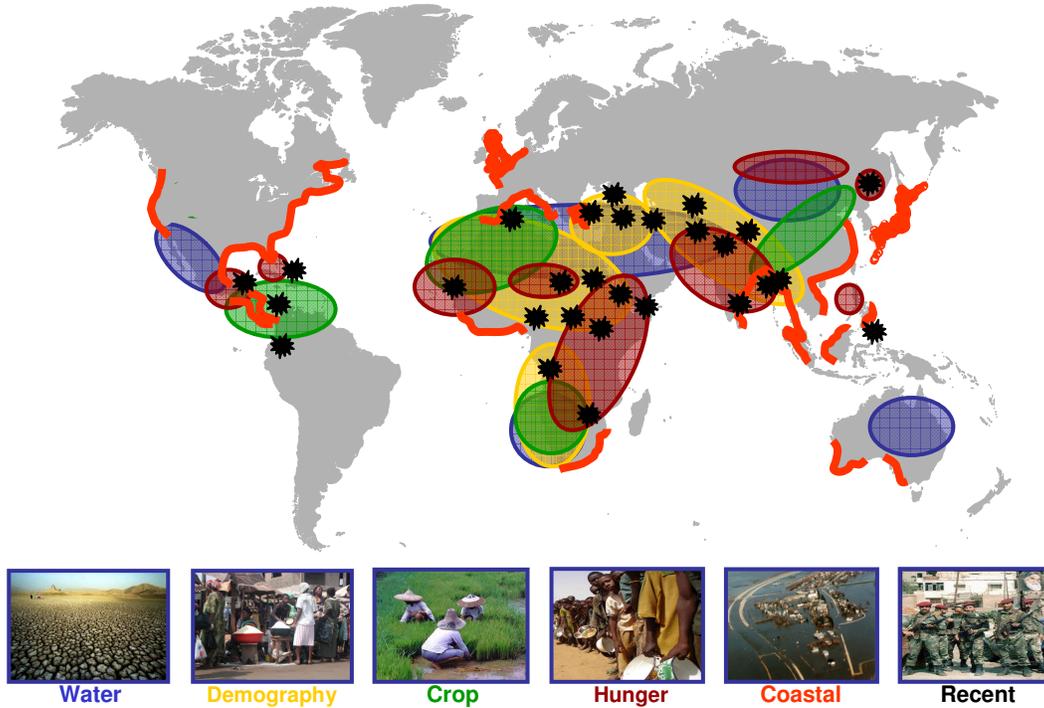
Climate-related impacts will also have broad ramifications for stability and security in some of the most politically volatile regions in the world. In a recent report from the Center for Naval Analysis (CNA), a number of retired US admirals and generals refer to climate change as a "threat multiplier," presenting significant national security challenges for the United States.

Josette Sheeran, executive director of the World Food Program recently warned that food-related riots in more than 30 countries were "stark reminders that food insecurity threatens not only the hungry but peace and stability itself". This week, US intelligence agencies will present a report to Congress, "The National Security Implications of Global Climate Change Through 2030," which is expected to reach many of the same conclusions concerning the security threat posed by climate change.

As UN Secretary General Ban Ki Moon recently noted, the increased scarcity of natural resources has contributed to conflicts in areas such as Darfur. The recent conflict there coincides with a 40% decline in precipitation in Sudan, which has been linked by scientists to global temperature change and changes in rainfall patterns tied to warming in the Indian Ocean. Such examples provide us with a glimpse at what is to come in the developing world if we do not reduce the degree of warming and build resilience to the consequences of climate change.

Figure 4. A Multiplier for Instability

A Multiplier for Instability



Source: World Resources Institute

While the US has a strong interest in climate impacts on vulnerable communities around the world, low-income and other vulnerable populations in the US will also be disproportionately affected by predicted climate impacts. For instance, according to the recent finding of the federal U.S. Climate Change Science Program, “[m]any of the expected health effects are likely to fall disproportionately on the poor, the elderly, the disabled, and the uninsured.”

In addition, Hurricane Katrina tragically illustrated the ways in which climate-related disasters can disproportionately affect the most vulnerable, imposing enormous human and economic tolls. In the future, other climate events such as floods and periods of extreme heat can be expected to have significant effects on low-income communities and other at-risk populations.

The Costs of Inaction

The costs of failing to act to address both the already realized effects of global warming and the need to dramatically reduce carbon emissions to limit the future effects of climate change are substantial and rapidly growing. The IPCC report notes that an increase in global average temperatures beyond 3.6° F (2° C) from pre-industrial levels will likely generate the most dangerous shocks to the world’s water resources, food production, sea levels, and ecosystems. As Sir Nicholas Stern has indicated, if we fail to

stay below the 2° C threshold and instead experience warming as high as 5-6° C (9-10.8°F), then we are likely to experience costs in excess of 10% of GDP in developing countries—countries where the vast majority of the population already lives in poverty.

If the moral and ethical arguments for dealing with the climate crisis are not yet evident, the economic imperative to reduce emissions is extremely clear. Even at current levels of global warming, the World Bank has estimated that the cost of protecting new investments in developing countries from climate impacts ranges from \$10-40 billion annually. However, this estimate does not include the costs of protecting already existing investments from climate impacts, nor does it address community-level needs for climate adaptation (such as reinforcing housing stock).

An Oxfam analysis of the costs of adapting to climate impacts in developing countries has found that the needs are at least \$50 billion annually, and potentially higher, when the protection of existing investments and community-level adaptation needs are incorporated.

Similarly, in their most recent Human Development Report, the United Nations Development Program (UNDP) estimates that the adaptation needs of developing countries will total \$86 billion per year from 2015 onward. This estimate is based on the costs of integrating climate-resiliency into development activities (such as with irrigation systems and preventive health programs), strengthening infrastructure such as schools and roads, and adding to disaster preparedness and response capacity.

These costs will climb much higher if global temperatures increase beyond the 3.6° F (2° C) threshold. Reducing greenhouse gas emissions as quickly as possible is therefore necessary to avoid annual costs in developing countries that could easily climb into the hundreds of billions of dollars each year.

Meanwhile, it is vital to invest immediately in efforts to adapt and build resilience to climate impacts. Acting today to reduce disaster risks and improve livelihoods in agriculture and other sectors is essential in order to avoid even greater costs later. For instance, providing improved irrigation and water retention systems will help reduce future food aid costs in times of scarcity or famine. Similarly, protecting infrastructure or putting in place natural sea buffers such as mangrove forests will help reduce future disaster assistance costs.

One of the recommendations of the CNA report on climate change and national security is for the US “to assist nations at risk build the capacity and resiliency to better cope with the effects of climate change. Doing so now can help avert humanitarian disasters later.”

The financial benefits from taking preventive action have been demonstrated widely. According to an analysis by the U.S. Geological Survey and the World Bank, an investment of \$40 billion to reduce disaster risk is capable of preventing disaster losses of \$280 billion. A study conducted by the British international development agency finds that every US\$1 invested in pre-disaster risk management activities in developing countries can prevent US\$7 in losses.

In China, US\$3 billion spent on flood defenses in the four decades up to 2000 is estimated to have averted losses of US\$12 billion. Evidence from a mangrove-planting project designed to protect coastal populations from storm surges in Viet Nam estimated

economic benefits that were 52 times higher than costs. In Brazil, a flood reconstruction and prevention project designed to break the cycle of periodic flooding in 2005 has resulted in a return on investment of greater than 50% by reducing residential property damages.

Bangladesh provides a particularly compelling example of the benefits of prudent planning and risk reduction. In 1970, up to 500,000 people perished in the Bhola cyclone in Bangladesh, and in 1991 another 138,000 people were killed in the Chittagong cyclone. Bangladesh has since instituted a national cyclone preparedness program that includes shelters, early warning systems and community-based preparedness measures. Last year when Cyclone Sidr struck, a network of some 34,000 volunteers were mobilized to effectively communicate risks to millions of people – even where many had limited or no access to TV and radio – to encourage evacuation to a network of cyclone shelters. As a result, while 3,300 people perished, far more lives were saved compared to the earlier cyclones.

By contrast, when Cyclone Nargis hit the Burma (Myanmar) delta region in May, there was a broad failure by the government to alert residents and provide protection. As a result, UN agencies report that more than 100,000 perished in the cyclone, and one estimate of the death roll from the Red Cross reaches as high as 127,000.

Opportunities Presented by the Climate Challenge

The linkages between climate change and the many dimensions of global development present both challenges and opportunities. Working with vulnerable communities in building their resilience to the consequences of climate change can also provide a means to encourage these same communities to become more economically, socially and politically resilient in the broadest sense. For instance, reliable access to essential services such as sanitation and clean water can help build the capacity of communities to respond to unpredictable climate events such as floods and drought but also can serve as a foundation for economic growth and development.

Often, building resilience means enhancing existing development approaches, such as improving agricultural techniques or water supply systems. At other times, however, the challenges will be new and different. For instance, some communities will have to adapt to rapidly melting mountain glaciers—creating excessive runoff and the potential for unprecedented floods now while leading to scarcer water supplies in future years once the glaciers are gone. These communities could benefit from the creation of reservoirs and water impoundments to capture and store water resources that will become increasingly scarce in the future. Alternatively, these communities may have to create flood warning systems to deal with higher water flows and may have to change agricultural practices and the crops they grow to deal with water abundance in the short term and scarcity sometime in the future.

Oxfam is exploring a variety of resilience-building approaches that promote economic development and poverty reduction thus improving climate-change resilience. Some examples include:

- *Saving for Change* (SfC) is an innovative and cost effective microfinance program targeted to the rural poor that acts as a trainer and facilitator so that groups learn to manage their own saving and lending activities. Oxfam is

currently working with partners in Cambodia where small-scale farmers are implementing an agricultural technique called System of Rice Intensification (SRI). SRI has been developed to revive traditional agricultural techniques for rice farming that may prove less water intensive and more productive than modern day agricultural approaches.

- In the region of Arequipa, Peru, our partner Asociacion Proyeccion (AP) is working with communities who are affected by numerous climate changes. Several initiatives include installing radio networks to ensure that remote communities are informed of any severe weather patterns. AP has gathered local/traditional knowledge about how to predict weather patterns and what steps to take when severe storms occur. Two interesting activities have been the planting of barley in the communities to provide food for animals in the event of a frost that kills the grasses; this is then stored in underground areas to ensure that it is available year round. Finally a new system of gravity fed irrigation has been installed to ensure that the pastures are properly watered.

Meanwhile, for many companies, there are critical overlaps between climate impacts that will affect their supply chains and impacts on local communities. For example, water scarcity can affect the production of cotton for the apparel industry so that finding ways to protect shared water resources can be enormously beneficial both to those companies and to communities. Meanwhile, adaptation efforts in developing countries can provide enhanced market opportunities for developers of new technologies —such as water purification systems that don't require the use of electricity.

Responding to climate change impacts on poor communities may also present new business opportunities and spur economic development in some of the poorest regions of the world. Recent interest in “climate-risk” insurance products by the insurance industry offers one indication that global financial institutions understand the costs and benefits of emissions reduction and building climate resilience aimed at hedging future climate risks.

In Ethiopia, where 85% of the population is dependent on rain-fed agriculture, Oxfam is working with the microinsurance industry and small-scale farmers to establish an agricultural risk management program. As rainfall patterns have become more unpredictable, the poor typically cope with economic crisis through self-insurance (e.g. savings, debt, and asset liquidation), income diversification, and informal insurance arrangements. For reasons well documented in the microinsurance literature, these risk-hedging strategies all too often fail. Exacerbating the problem, particularly in Ethiopia, is farmers' own reluctance to experiment with higher risk, but higher yielding technologies like drought resistant seeds, even when affordable credit is available.

The development of new, clean energy technologies to support climate adaptation and resilience in developing countries can also provide business opportunities. Energy poverty, or the absence of access to reliable energy services, affects approximately one-third of the world's population, with 80% of those in South Asia and Sub-Saharan Africa. For example, Tanzania and Ethiopia have electricity access rates of 10% and 13% respectively, with access heavily skewed towards urban centers. The alternative energy sources that can benefit these countries are part of a rapidly growing sector (by 2016, for example, the global photovoltaic solar cell industry is projected to be worth \$69.3 billion and wind power worth \$60.8 billion, each generating new jobs and creating new markets

for investment and trading). Building a new renewable energy future in vulnerable countries can provide the developing world with the infrastructure needed for some critically needed adaptation strategies (e.g, electricity for pumps to provide ground water for irrigation), while also helping developing nations grow along a low-carbon pathway.

Conclusion

As noted by Jim Hansen yesterday on the 20th anniversary of his first appearance before a congressional committee to sound the alarm about climate change, “We have reached the tipping level for several important effects [of climate change]. That is why we must go back in CO₂ amounts to at least 350 ppm and possibly lower.”¹ For this reason, we must deliver steep reductions in US greenhouse gas emissions and invest in innovative strategies to deal with the consequences of global warming that are already evident and are certain to grow.

As the saying goes, the best way to get out of a hole is to stop digging. As Dr. Hansen, the IPCC, and many other leading experts and scientists have warned, we need to stop contributing to our own demise by substantially reducing our greenhouse gas emissions.

At the same time, we must invest in measures to help adapt to climate change and build greater resiliency for populations and communities most vulnerable to its consequences. This is particularly true in the developing world where those who are most vulnerable reside. Again, this is not simply a matter of moral and ethical importance, but one with important social, economic and global security consequences. In brief, the imperative to provide support for climate adaptation is not simply an environmental concern, but a matter of global importance on many fronts.

Mr. Chairman, we applaud your interest in climate change and the Committee’s efforts to develop the body of evidence needed to guide sound decisions on how to deal with global warming and its consequences. While we are late to the table as a nation, it is still not too late to act and to demonstrate our resolve to lead in addressing what we believe to be the greatest humanitarian challenge of this century.

Thank you for the opportunity to appear before you today. I am glad to answer any questions that you may have.

¹ Remarks of Dr. James Hansen before the National Press Club on the 20th Anniversary of his testimony on climate change before the Senate Energy and Natural Resources Committee. June 23, 2008.